Unit: 2	***Earth's Structures: Layers of Solid Earth/Plate Tectonics***

Know:	Understand:	Do:
1. Composition and layers of the solid Earth include the lithosphere, mantle, metallic liquid and solid core. 2. The patterns within the rock cycle include plate tectonics, erosion, weathering, and mountain building. 3. Geologists apply radioactive data and the law of superposition to explain the age of the Earth. 4. Heat flows within Earth causing movement such as earthquakes and volcanic eruptions, and creates mountains and ocean basins. 5. Evidence supports the theory of plate tectonics, that Earth's crustal plates cause slow and rapid changes in Earth's surface.	1. Understand that over geologic time, internal and external sources have altered the features of Earth.	1. Create a model or diagram that accurately represents the various layers of Earth and their composition. 2. Arrange a diagram or schematic that accurately represents the patterns of the rock cycle. 3. Predict the age of an object based on its position in an Earth model. 4. Create a cause/effect graphic organizer that reflects the heat flow of various movements within Earth creating earthquakes, volcanic eruptions, and ocean basins. 5. Cite evidence that supports the theory of plate tectonics.

Key Learning:	Understand that over geologic time, internal and external sources have altered the features of Earth.
Unit Essential Question:	What are the internal and external sources of energy that have continuously altered the features of Earth?

EARTH'S STRUCTURES

Level 4 Expert/ Superhero	**I meet level 1, 2, and 3 and…** -I am able to construct a model of the Earth's Structures using real world examples and then present and explain my model to the class. -I can analyze a Movie scene where the properties Earth's Structures and the forces outside and inside of the Earth that shape its surface are not correctly represented and explain that in a presentation to the class. -I can create a media presentation that explains the evidence that supports the theory of plate tectonics to my class.
Level 3 Meeting the Goal	**I meet level 1 and 2 and can…** -I can explain that over the history of the Earth's existence that outside and inside forces have affected the Earth and shaped it's surface. -I can create a diagram of the rock cycle without notes. -I can create a graphic organizer that shows the processes that happen inside and outside of Earth. -Cite evidence that supports the Theory of Plate Tectonics.
Level 2 Almost There	**I meet level 0 and 1 and can…** -I will be able to create a diagram of the rock cycle. -I can identify the processes that occur inside and outside of Earth to shape its surface. -I know that the Earth's surface is made up of different types of plates.
Level 1 Getting Started	**I meet level 0 and can…** -I will be able to identify the steps of the rock cycle. -I can identify some processes that occur inside and outside of Earth to shape its surface. -I know that there are three layers of the Earth.
Level 0 Still in Disguise	**Do we have to wash the Earth's Plates too!?**

Concept: Layers of Earth	Benchmark(s): **SC.7.E.6.1** *Describe the layers of the solid Earth, including the lithosphere, the hot convecting mantle, and the dense metallic liquid and solid cores.* **SC.912.E.6.2** *Connect surface features to surface processes that are responsible for their formation.*	**Lesson Essential Questions:** How can the layers of Earth be described and compared?	**Vocabulary:** inner core, outer core, mantle, asthenosphere, lithosphere, convection, crust, mesosphere, core
Concept: Rock Cycle	Benchmark(s): **SC.7.E. 6.2** *Identify the patterns within the rock cycle and relate them to surface events (weathering and erosion) and sub-surface events (plate tectonics and mountain building).*	**Lesson Essential Questions:** What factors influence the formation of different rock types?	**Vocabulary:** sedimentary, metamorphic, igneous, mantle, heat, pressure, *fold
Concept: Law of Superposition and Radioactive Dating	Benchmark(s): **SC.7.E. 6.3** *Identify current methods for measuring the age of Earth and its parts, including the law of superposition and radioactive dating.* **SC.7.E. 6.4** *Explain and give examples of how physical evidence supports theories that Earth has evolved over geologic time due to natural processes.* **SC.7.N.3.1** *Recognize and explain the difference between theories and laws and give several examples of scientific theories and the evidence that supports them.*	**Lesson Essential Questions:** How does the law of superposition and radioactive dating support geologic change over time?	**Vocabulary**: law of superposition, radioactive dating, radioactive decay, isotopes, C14, relative dating, absolute dating, *law (scientific law)

Concept: Relationships of Earth's Features	Benchmark(s) **SC.7.E.6.7** *Recognize that heat flow and movement of material within Earth causes earthquakes and volcanic eruptions, and creates mountains and ocean basins.* **SC.912.E.6.2** *Connect surface features to surface processes that are responsible for their formation.*	**Lesson Essential Questions:** What are the effects of heat flow and movement of materials within Earth? **What are the connections between various landforms that shaped on Earth's surfaces and processes that are responsible for their formations?**	**Vocabulary**: earthquakes, volcanoes, mountains, ocean basins, lava, magma, *fault e.g. dunes, lakes, sinkholes, aquifers erosion, weathering, deposition
Concept: Theory of Plate Tectonics	Benchmark(s): **SC.7.E.6.4** ***(above)*** **SC.7.E.6.5** *Describe how the movement of Earth's crustal plates causes both slow and rapid changes in Earth's surface, including volcanic eruptions, earthquakes, and mountain building.* **SC.7.N.2.1** *Identify an instance from the history of science in which scientific knowledge has changed when new evidence or new interpretations are encountered.* **SC.7.N.3.1** ***(****above)* **SC.912.E.6.3** *Analyze the theory of plate tectonics and identify related major processes and features as a result of moving plates.*	**Lesson Essential Questions:** How does the theory of plate tectonics explain the movement of Earth's layers? **What are the 3 primary types of plate boundaries?** **What type of geologic features is a result from plate tectonics?**	**Vocabulary**: Pangea, convection, theory of continental drift, theory of plate tectonics, *theory (scientific theory)

Learning Goal

		I can explain how the law of superposition and radioactive dating support geologic change over time
		I can explain the effects of heat flow & movement of materials within Earth.
		I can explain the theory of tectonic plates.
		I can explain the rock cycle and factors that influence rock formation
		I can describe and compare the layers of the Earth